REMARKS

Applicants respectfully request reconsideration of the present application in view of the above amendments and the reasons which follow. Claims 1 and 17 have been amended. Claims 1-12 and 17-25 remain pending in this application.

Amendments

Claims 1 and 17 have been amended to expressly recite that the molten salt electrolysis provides decontaminated electrically conductive waste. Applicants believe that this feature was implicit in original claims 1 and 17, and thus the amendments do not narrow these claims.

Rejections under 35 U.S.C. § 103

Claims 1-7 and 17-23 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,322,545 to Gilchrist (hereafter "Gilchrist") in view of U.S. Patent No. 5,009,752 to Tomczuk et al. (hereafter "Tomczuk"). Claims 8 and 24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Gilchrist and Tomczuk and further in view of U.S. Patent No. 5,225,051 to Poa et al. (hereafter "Poa"). Claims 9-12 and 25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Gilchrist and Tomczuk and further in view of U.S. Patent No. 5,160,367 to Pierce et al. (hereafter "Pierce"). Applicants traverse these rejections for at least the following reasons.

The present invention as recited in the claims is directed to a method of treating electrically conductive waste contaminated with nuclear fuel materials, and a corresponding apparatus. Independent claim 1 is a method claim comprising "a molten salt electrolysis process for removing the nuclear fuel materials adhering to a surface of the waste by immersing the waste in a molten salt to dissolve a surface layer of the waste electrochemically in the molten salt so as to provide a decontaminated electrically conductive waste." In a corresponding fashion, independent claim 17 is an apparatus comprising "a molten salt electrolysis unit for removing the nuclear fuel materials adhering to a surface of the waste by immersing the waste in a molten salt to dissolve a surface layer of the waste electrochemically in the molten salt so as to provide a decontaminated electrically conductive waste." Thus, in the present

invention as recited in independent claims 1 or 17, decontaminated electrically conductive waste is provided by using molten salt electrolysis to remove nuclear fuel materials adhering to a surface of the contaminated waste to dissolve a surface layer of the waste electrochemically in the molten salt. Applicants submit that the references cited in the rejection do not suggest this feature of the claimed invention.

The Office Action recognizes that Gilchrist "fails to specifically teach a method or apparatus for removing the nuclear fuel materials adhering to a surface of the waste by immersing the waste in a molten salt to dissolve a surface layer of the waste electrochemically in the molten salt." Applicants submit that Tomczuk does not cure the deficiencies of Gilchrist.

Tomczuk is directed to a process and apparatus for recovery of fissionable materials from spent reactor fuel by anodic dissolution (see title). Tomczuk discloses loading chopped, spent metal-clad fuel pins 20 in perforated metal screen boxes 17 of an anode basket (col. 5, lines 43-52).

Applicants submit that one skilled in the art would not have combined Tomczuk with Gilchrist in the fashion suggested in the Office Action. Gilchrist discloses providing uranium chloride powder into the reactor vessel 13 through inlet line 19 (col. 2, lines 45-49). One skilled in the art would not have substituted the chopped spent metal-clad fuel pins of Tomczuk for the uranium chloride powder of Gilchrist, at least because of risk of increased contamination due to the metal cladding of the fuel pins. Gilchrist is directed to producing uranium per se, not in recovering uranium and plutonium from spent fuel pins as disclosed in Tomczuk. There would be no need to use spent fuel pins in the Gilchrist process, and the risk of contamination would have led one skilled in the art away from combining these references in the fashion suggested in the Office Action.

Moreover, even if there were motivation (which there is not) to combine Tomczuk with Gilchrist, the resulting combination would not meet the limitations as recited in claims 1 and 17. Claims 1 and 17 require removing the nuclear materials adhering to a surface of electrically conductive waste contaminated with nuclear fuel materials to dissolve a surface layer so as to provide decontaminated electrically

conductive waste. The spent fuel pins of Tomczuk can not reasonably be viewed as a metal clad contaminated with nuclear fuel. Thus, even if the Tomczuk were combined with Gilchrist, the combination would not meet the limitations of the presently claimed invention.

Pierce and Poa also fail to cure the deficiencies of Tomczuk and Gilchrist. Poa was cited for allegedly disclosing the use of a liquid metal electrode in a process for reclaiming nuclear fuel materials. Pierce was cited for allegedly disclosing a reducing process for reducing oxide nuclear fuel materials to metals. Pierce and Poa, however, also fail to suggest that decontaminated electrically conductive waste is provided by using molten salt electrolysis to remove nuclear fuel materials adhering to a surface of the contaminated waste to dissolve a surface layer of the waste electrochemically in the molten salt.

For at least the reasons given above, applicants submit that claims 1 and 17 are patentable over Tomczuk, Gilchrist, Poa and Pierce, and request that the rejections under 35 U.S.C. 103 be withdrawn. The dependent claims are patentable for at least the same reasons as claims 1 and 17, as well as for further patentable features recited therein.

Respectfully submitted,

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MARKED UP VERSION SHOWING CHANGES MADE

Below are the marked up amended claim(s):

1. (Once Amended) A method of treating electrically conductive waste contaminated with nuclear fuel materials from a nuclear fuel handling facility, which comprises:

a molten salt electrolysis process for removing the nuclear fuel materials adhering to a surface of the waste by immersing the waste in a molten salt to dissolve a surface layer of the waste electrochemically in molten salt so as to provide a decontaminated electrically conductive waste; and

a filtering process for filtering the molten salt used in the molten salt electrolysis process to extract the nuclear fuel materials removed from the surface of the waste and accumulated in the molten salt from the molten salt;

wherein the molten salt filtered in the filtering process is reused in the molten salt electrolysis process.

17. (Once Amended) An apparatus for treating an electrically conductive waste contaminated with nuclear fuel materials from a nuclear fuel handling facility, which comprises:

a molten salt electrolysis unit for removing the nuclear fuel materials adhering to a surface of the waste by immersing the waste in a molten salt to dissolve a surface layer of the waste electrochemically in the molten salt so as to provide a decontaminated electrically conductive waste;

a filtering unit for filtering the molten salt used by the molten salt electrolysis unit to extract the nuclear fuel materials removed from the surface of the waste and accumulated in the molten salt from the molten salt; and

a molten salt return line for returning the molten salt filtered by the filtering unit to the molten salt electrolysis unit.